

1 CLAIMS:

What is claimed is:

1. A communication system including a differential signal  
5 transmitter, the transmitter comprising:

a multiplicity of signal component output circuits, each  
signal component output circuit operable in a first mode sensitive  
to a first metric and a second mode sensitive to a second metric;  
and

10 a selection circuit, the selection circuit asserting  
control signals adaptively configuring each signal component  
output circuit to operate in either the first mode or the second  
mode.

15 2. The communication system according to claim 1, wherein  
the transmitter includes an output DAC, the output DAC further  
including a DAC decoder circuit, the decoder circuit receiving  
input digital signals and outputting a control word to the signal  
component output circuits, wherein the control word is the same  
20 for both the first and second modes.

3. The communication system according to claim 2, the  
selection circuit further comprising:

25 a first logic circuit connected to receive the control  
word, the first logic circuit asserting control signals which  
operate a corresponding signal component output circuit in the  
first mode; and

a second logic circuit connected to receive the control  
word, the second logic circuit asserting control signals which  
30 operate a corresponding signal component output circuit in the  
second mode.

4. The communication system according to claim 3, each  
signal component output circuit contributing a particular signal  
35 quantum to a differential output signal, a maximal value of the

1 sum of said quanta determined by a particular transmission  
standard, the maximal value defined by a corresponding number of  
signal component output circuits, wherein the control word  
adaptively disables a set of signal component output circuits so  
5 as to limit the maximal value of the sum of the signal quanta  
contributed by the remaining signal component output circuits to  
a value determined by a second transmission standard.

5. The communication system according to claim 4, wherein  
10 the first metric corresponds to radiative emissions and wherein  
the second metric corresponds to power consumption.

6. The communication system according to claim 5, wherein  
each signal component output circuit comprises a differential  
15 current mode driver cell, the first mode comprising a Class-A  
constant common-mode current, the second mode comprising a Class-B  
variable common-mode current.

7. The communication system according to claim 6, wherein  
20 the control word takes on a same value to both adaptively disable  
a set of signal component output circuits and to control operation  
of the same set of signal component output circuits with respect  
to the first or second modes.

25 8. A communication system including a differential signal  
transmitter, the transmitter comprising:

a multiplicity of signal component output circuits, each  
signal component output circuit contributing a particular signal  
quantum to a differential output signal, a maximal value of the  
30 sum of said quanta determined by a particular transmission  
standard, the maximal value defined by a corresponding number of  
signal component output circuits; and

a selection circuit, the selection circuit asserting  
control signals to each of said signal component output circuits,  
35 wherein the control signals adaptively disable a set of signal

1 component output circuits so as to limit the maximal value of the  
sum of the signal quanta contributed by the remaining signal  
component output circuits to a value determined by a second  
transmission standard.

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9. The communication system according to claim 8, wherein  
the multiplicity of signal component output circuits are operable  
in a first mode sensitive to a first metric and a second mode  
sensitive to a second metric, the transmitter further comprising  
10 a selection circuit, the selection circuit asserting control  
signals adaptively configuring each signal component output  
circuit to operate in either the first mode or the second mode.

10. The communication system according to claim 9, wherein  
15 the transmitter includes an output DAC, the output DAC further  
including a DAC decoder circuit, the decoder circuit receiving  
input digital signals and outputting a control word to the signal  
component output circuits, wherein the control word is the same  
for both the first and second modes.

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11. The communication system according to claim 10, the  
selection circuit further comprising:

a first logic circuit connected to receive the control  
word, the first logic circuit asserting control signals which  
25 operate a corresponding signal component output circuit in the  
first mode; and

a second logic circuit connected to receive the control  
word, the second logic circuit asserting control signals which  
operate a corresponding signal component output circuit in the  
30 second mode.

12. The communication system according to claim 11, wherein  
the first metric corresponds to radiative emissions and wherein  
the second metric corresponds to power consumption.

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1        13. The communication system according to claim 12, wherein  
each signal component output circuit comprises a differential  
current mode driver cell, the first mode comprising a Class-A  
constant common-mode current, the second mode comprising a Class-B  
5 variable common-mode current.

14. The communication system according to claim 13, wherein  
the control word takes on a same value to both adaptively disable  
a set of signal component output circuits and to control operation  
10 of the same set of signal component output circuits with respect  
to the first or second modes.

15. The communication system according to claim 14, wherein  
the transmitter includes an output DAC, the output DAC further  
15 including a DAC decoder circuit, the decoder circuit receiving  
input digital signals and outputting a control word to the signal  
component output circuits.

16. The communication system according to claim 15, each  
20 differential current mode driver cell comprising:

first and second current sources, each conducting an  
equal quanta of current;

first and second differential pairs, each pair coupled  
to a respective current source;

25 a pair of differential outputs, a first output connected  
to a first transistor comprising each of the differential pairs,  
a second output connected to a second transistor comprising each  
of the differential pairs; and

four control signal inputs, each input controlling to a  
30 respective one of the transistors comprising the first and second  
differential pairs.

17. A communication system including a differential signal  
transmitter, the transmitter comprising:

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1           a DAC decoder circuit, the DAC decoder circuit  
outputting DAC control words corresponding to digital input  
signals;;

          a differential current mode driver cell array;

5           a selection circuit, the selection circuit asserting  
control signals in operative response to DAC control words, the  
selection circuit placing individual cells of the current driver  
cell array into a first operational mode sensitive to a first  
metric or into a second operational mode sensitive to a second  
10 metric in response to a select signal.

18. The communication system according to claim 17, wherein  
the first metric corresponds to radiative emissions and wherein  
the second metric corresponds to power consumption.

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19. The communication system according to claim 18, each  
differential current mode driver cell comprising:

          first and second current sources, each conducting an  
equal quanta of current;

20           first and second differential pairs, each pair coupled  
to a respective current source;

          a pair of differential outputs, a first output connected  
to a first transistor comprising each of the differential pairs,  
a second output connected to a second transistor comprising each  
25 of the differential pairs; and

          four control signal inputs, each input controlling to a  
respective one of the transistors comprising the first and second  
differential pairs.

30       20. The communication system according to claim 19, further  
comprising:

          a first logic circuit connected to receive the DAC  
control word, the first logic circuit asserting control signals  
which operate a corresponding signal component output circuit in  
35 the first mode; and

1           a second logic circuit connected to receive the control word, the second logic circuit asserting control signals which operate a corresponding signal component output circuit in the second mode.

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21. The communication system according to claim 20, each differential current mode driver cell comprising:

first and second current sources, each conducting an equal quanta of current;

10           first and second differential pairs, each pair coupled to a respective current source;

a pair of differential outputs, a first output connected to a first transistor comprising each of the differential pairs, a second output connected to a second transistor comprising each of the differential pairs; and

15           a set of control signal inputs, each input of the set controlling a respective one of the transistors comprising the first and second differential pairs.

20           22. The communication system according to claim 21, the first and second logic circuits each defining control signals in response to a DAC control word, said first and second differential pairs operatively responsive to said control signals to output a differential signal in either the first mode or the second mode.

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23. The communication system according to claim 22, wherein the DAC control word is the same when the first and second differential pairs output a differential signal in either the first mode or the second mode.

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24. The communication system according to claim 23, wherein the first mode is a Class-A mode and wherein the second mode is a Class-B mode.

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1        25. A communication system including a differential signal  
transmitter, the transmitter comprising:  
         a multiplicity of signal component output circuits;  
         first means for adaptively configuring said signal  
5 component output circuits to operate in either a first emissions  
sensitive mode or a second power sensitive mode; and  
         second means for adaptively configuring said signal  
component output circuits to operate in accordance with at least  
two transmission standards, wherein said first and second means  
10 are implemented in a single integrated circuit.

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